

Summary of observations

Components of the Systems Engineering Initiative for Patient Safety model	Summary of observations
Person	<ul style="list-style-type: none"> • Most of the staff are female • Staff <ul style="list-style-type: none"> ○ <i>RNs^a</i>: roles include creating nursing assignments, making up the working schedules, developing resident's treatment plans, administering medicine (Intravenous (IV) and blood) in addition to their supervisory role (primary care managers) ○ <i>LPNs^b</i>: roles include directing bedside care, checking vital signs, administering medication, collecting samples for testing, feeding patients who use feeding tubes, and performing other procedures ○ <i>CNAs^c</i>: roles include routine tasks in the provision of personal care to residents, such as eating, dressing, bathing, and getting in and out of bed • Unit: long-term care and short-term care unit. <ul style="list-style-type: none"> ○ Three shifts • Other: demonstrates a lack of teamwork and poor working conditions
Organization	<ul style="list-style-type: none"> • Incompliance with protocols: overruling rounds and muting the system • LPNs tend not to respond (all staff must respond to alarms), the long response time (more than 5 min to respond to a call light), lack of collaboration (teamwork and difficulties in

	<p>finding help) and communication, and the nurse station are understaffed</p> <ul style="list-style-type: none"> • Poor maintenance of the system: many broken parts • Control over the practice and supervisor support: <ul style="list-style-type: none"> ○ The schedule is flexible to some degree ○ There are limitations in providing input/suggestions, staff shortage, and blaming staff in case of adverse events such as falls
Task	<ul style="list-style-type: none"> • Responding to a call light: all staff are expected to respond within 5 min • High mental and physical workload: information processing and memory (divided attention and multitasking: slower and less accurate tasks and change blindness), interruptions, diagnosticity (staff perceptions about call lights), and alarm fatigue
Environment	<ul style="list-style-type: none"> • Layout: not visible (display at nurse station), lights above the resident's rooms are not visible (blocked by beams and doors), and long hallways (hard to hear) • Noise: loudspeakers to broadcast alarms; the alarm is on most of the time, residents complain about the noise
Technology/tools	<p>Usability issues</p> <ul style="list-style-type: none"> • The nurse station is not occupied • No directional information • There is a lack of prioritization and low/no discriminability; is it a bathroom or bedroom • Many broken parts (can cause failure to detect changes) • The location/position of the display (not accessible)

	<ul style="list-style-type: none"> • The staff can mute the system • The system handles only 1 alarm at a time; new alarm “overwrites” previous alarm • There is no feedback (process to monitor) about the previous alarm • False alarms • Loudspeakers (noise)
Process	Call lights (alarms) notification and location process
Outcomes	Staff overall job satisfaction, stress, and burnout

^aRN: registered nurse.

^bCNA: certified nurse assistant.

^cLPN: licensed practical nurse.